CLAIMS

1. A method of fabricating a cathode, comprising: depositing a carbon material on a portion of a titanium substrate; heating the deposited material and the titanium substrate at between about 600 degrees to about 1,000 degrees Celsius at a reduced pressure and/or under a chemically inert cover gas to form a titanium carbide layer at interface of the titanium and the carbon material; and

activating the deposited carbon material by heating in an oxygencontaining atmosphere for between about 0.1 hour to about four hours at temperatures between 200 degrees and 500 degrees Celsius.

- 2. A method according to claim 1, further comprising the step of postprocessing the titanium carbide layer.
- 3. A method according to claim 1, wherein the depositing step is performed by at least one of: a manual painting process, an ink jet printing process, a thermal transfer printing process, a hot stamping process, a dye sublimation process, a screen printing process, a chemical vapor deposition process, a sputtering process.
- 4. A method according to claim 3, wherein the ink jet printing process comprises a thermal ink jet printing process.
- 5. A method according to claim 3, wherein the ink jet printing process comprises a piezoelectric ink jet printing process.
- 6. A method according to claim 3, wherein the chemical vapor deposition process comprises a plasma-enhanced chemical vapor deposition process.

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- 7. A method according to claim 1, wherein the carbon material comprises a carbon nanotube material.
- 8. A method according to claim 7, wherein the carbon nanotube material comprises a single-walled nanotube material.
- 9. A method according to claim 1, wherein the titanium substrate comprises an interior portion of a capacitor housing.
- 10. A method according to claim 1, wherein the titanium substrate comprises a thin sheet of titanium.
- 11. A method according to claim 10, further comprising: depositing the carbon material on opposing major surfaces of the thin sheet of titanium.
- 12. A method according to claim 10, further comprising: cutting the thin sheet of titanium into smaller units.
- 13. A method according to claim 1, further comprising: covering the cathode with a dielectric separator material.
- 14. A method according to claim 13, wherein the dielectric separator material comprises at least two discrete layers of dielectric separator material.
- 15. A method according to claim 13, wherein the dielectric separator material comprises one of a polyurethane material or a polypropylene material.

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- 16. A method according to claim 1, wherein the cover gas comprises: a relatively inert gaseous material.
- 17. A method according to claim 16, wherein the cover gas comprises one or anhydrous nitrogen and carbon dioxide.
- 18. A cathode, comprising:a titanium substrate; anda layer of carbon material disposed on said titanium substrate.
- 19. A cathode according to claim 18, wherein the substrate comprises a portion of a casing for a wet electrolytic tantalum capacitor.
- 20. A cathode according to claim 18, wherein the layer of carbon is coupled to the substrate via a one of: a manual painting process, an ink jet printing process, a thermal transfer printing process, a hot stamping process, a dye sublimation process, a screen printing process, a chemical vapor deposition process, a sputtering process.
- 21. A cathode according to claim 20, wherein the ink jet printing process comprises a thermal ink jet printing process.
- 22. A cathode according to claim 20, wherein the ink jet printing process comprises a piezoelectric ink jet printing process.
- 23. A cathode according to claim 20, wherein the chemical vapor deposition process comprises a plasma-enhanced chemical vapor deposition process.

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- 24. A cathode according to claim 18, wherein the carbon material comprises a carbon nanotube material.
- 25. A cathode according to claim 24, wherein the carbon nanotube material comprises a single-walled nanotube material.
- 26. A cathode according to claim 18, wherein the titanium substrate comprises an interior portion of a capacitor housing.
- 27. A cathode according to claim 18, wherein the titanium substrate comprises a thin sheet of titanium.
- 28. A cathode according to claim 27, wherein the carbon material is disposed on opposing major surfaces of the thin sheet of titanium.
- 29. A cathode according to claim 27, further comprising: substantially linear relatively thin grooves disposed on the surface of the titanium.
- 30. A cathode according to claim 18, further comprising a dielectric separator material covering the cathode.
- 31. A cathode according to claim 30, wherein the dielectric separator material comprises at least two discrete layers of dielectric separator material.
- 32. A cathode according to claim 30, wherein the dielectric separator material comprises one of a polyurethane material or a polypropylene material.